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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Riki Okamoto

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EXAMINER

YANG, JIE

ART UNIT

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1733

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,227	Applicant(s) OKAMOTO ET AL.	
	Examiner JIE YANG	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,9-11,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,9-11,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/21/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/12/2010 has been entered.

Status of the Claims

Claims 2-8, and 12-18 have been cancelled; claims 1 and 9 have been amended; claims 19-20 are added as new claims; and claims 1, 9-11, 19, and 20 are pending in application.

Status of the Previous Rejection

Previous rejection of claim 18 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn since claim 18 has been cancelled in view of the applicant's amendment filed on 11/12/2010.

Previous rejection of claim 1 on the ground of nonstatutory obviousness type double patenting as being unpatentable over claims 1 and 2 of copending application

Art Unit: 1733

US 2006/0231166 A1 which is updated as US patent 7,828,912 B2 is withdrawn in view of the "Terminal Disclaimer" filed on 10/8/2010 and approved on 11/06/2010.

Previous rejection of claims 1 and 9-11 under 35 U.S.C. 103(a) as being unpatentable over JP'543 in view of US'968 is withdrawn in view of the applicant's amendment filed on 11/12/2010.

However, in view of the newly recorded reference, a new ground(s) of rejection is made as following.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 9-11, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutomu (JP2001-342543 A, thereafter JP'543) evidenced by Yasuhara et al (US 6,364,968 B1, thereafter US'968) in view of Nomura et al (US 5,470,529 B1, thereafter US'529).

Regarding claims 1 and 9, JP'543 teaches a high strength steel sheet with an excellent boring property and ductility (Title and abstract of JP'543), which reads on the high-strength steel sheet excellent in hole-expandability and ductility as

Art Unit: 1733

recited in the instant claims. The composition comparison between JP'543 and the instant claims is listed in the following table. All of the major composition ranges disclosed by JP'543 (Abstract and claims 1-4 of JP'543) overlap the composition ranges of the instant invention, which is a prima facie case of obviousness. SEE MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed compositions of C, Si, Mn, P, S, N, Mg, O, Ti/Nb, and Fe from the composition disclosed by JP'543, because JP'543 discloses the same utility throughout the disclosed ranges.

Element	From instant Claims 1 and 9 (in wt%)	JP'543 (in wt%)	Overlapping range (in wt%)
C	0.01-0.20	0.01-0.20	0.01-0.20
Si	≤1.5	0.3-1.5	0.3-1.5
Al	0.08-1.5	0.002-0.07	--
Mn	0.5-3.5	0.55-2.5	0.55-2.5
P	≤0.2	≤0.10	≤0.10
S	0.0005-0.009	≤0.009	0.0005-0.009
N	≤0.009	≤0.010	≤0.009
Mg	0.0006-0.01	0.0005-0.01	0.0006-0.1
O	≤0.005	Trace amount	Trace amount
Ti and/or Nb	Ti: 0.01-0.20; Nb:0.01-0.10	Ti:0.003-0.25 and/or Nb:0.003-0.04	Ti:0.01-0.20 and/or Nb: 0.01-0.04
Fe	Balance	Balance	Balance

JP'543 teaches the steel having a structure of mainly a ferrite and the residue being a bainite (Abstract of JP'543), which reads on the structure of primarily comprising ferrite and

Art Unit: 1733

bainite as recited in the instant claim 9. JP'543 does not specify the steel having a structure primarily comprising bainite (claim 1). However, the microstructure of this kind steel is controllable, which is further evidenced by US'968. US'968 teaches a high-strength steel sheet having excellent stretch flangeability with a fine bainite structure and having a similar composition as disclosed in JP'543 (Abstract and claims 1-6 of US'968). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the microstructure as demonstrated by US'968 to the steel of JP'543 in order to obtain a desired ferrite plus bainite (claim 9) or fine bainite structure (claim 1) because US'968 teaches the steel with a proper structure, for example the fine bainite structure having high tensile strength (990-1210MPa) and excellent in hole-expandability (Hole-expanding ratio: 155%-170%) (Refer to Samples No.2-4 and 7 in table 3 and samples No.3, 6, 7, and 13 in table 5 of US'968).

Still regarding claim 1 and 9, JP'543 does not specify the Al range from 0.08 to 1.5wt% as recited in the instant claims. US'529 teaches a high tensile strength, hot or cold rolled steel sheet having improved ductility and hole expandability (Abstract and claims 1-45 of US'529). The composition comparison between US'529 and the instant claims is listed in the following table.

Art Unit: 1733

All of the major composition ranges disclosed by US'529 overlap the composition ranges of the instant invention and the composition ranges of JP'543. US'529 teaches adding 0.1-2.0wt%Al in the alloy, which overlaps the claimed 0.08-1.5wt%Al as recited in the instant claims 1 and 9. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the proper amount of Al as disclosed by US'529 to the steel of JP'543 evidenced by US'968 because US'529 teaches that proper amount Al, for example from 0.1-2.0wt% or more preferably in the range of 0.5-1.5wt%Al will improve the ductility and hole expandability of the alloy (Fig.2 and Col.7, lines 60-67 of US'529).

Element	From instant Claims 1 and 9 (in wt%)	US'529 (in wt%)	Overlapping range (in wt%)
C	0.01-0.20	0.05-0.3	0.05-0.20
Si	≤1.5	2.5 or less	≤1.5
Al	0.08-1.5	0.1-2.0	0.1-1.5
Mn	0.5-3.5	0.05-4	0.5-3.5
P	≤0.2	≤0.10	≤0.10
S	0.0005-0.009	≤0.1	0.0005-0.009
N	≤0.009	≤0.01	≤0.009
Mg	0.0006-0.01	Trace amount	--
O	≤0.005	Trace amount	Trace amount
Ti and/or Nb	Ti: 0.01-0.20; Nb:0.01-0.10	Ti:0.005-0.1 and/or Nb:0.005-0.1	Ti:0.01-0.1 and/or Nb: 0.01-0.1
Fe	Balance	Balance	Balance

Regarding the equations (1) to (7) in the instant claim 1 and the equations (1)-(4), and (8) in the instant claim 9, they

Art Unit: 1733

fully depend on the alloy compositions. It is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D.357, 553 O.G.177; 57 USPQ 117, *Taklatwalla v. Marburg*. 620 O.G.685, 1949 C.D.77, and *In re Pilling*, 403 O.G.513, 44 F(2) 878, 1931 C.D.75. In the instant case, in the absence of evidence to the contrary, the selection of the proportions of elements, Mg, O, S, Mn, Si, Al, C, Ti, and Nb from JP'543 evidenced by US'968 in view of US'529 in order to meet the equations (1) to (7) (claim 1) and/or to meet the equations (1)-(4), and (8) (claim 9) would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688.

Regarding the "consisting essentially of" language in the instant claims 1 and 9, the transitional language "consisting essentially of" is constructed as equivalent to "comprising" See, e.g., *PPG*, 156 F.3d at 1355, 48 USPQ2d at 1355. If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. *In re De*

Art Unit: 1733

Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See MPEP 2111.03. In the instant case, the applicant has not shown that the introduction of the additional alloy elements of the cited prior art would materially change the characteristics of applicant's invention.

Regarding the limitation of precipitates of MgO, MgS, and (Nb,Ti)N in the instant claims 1 and 9, JP'543 teaches that steel sheet is characterized by containing between 1.0×10^3 - 1.0×10^7 pieces/mm² of composite precipitates of MgO and (Nb,Ti)N of not smaller than 0.05μm and not larger than 5μm (Claim 2 of JP'543), which overlaps the composite precipitates: 5.0×10^2 - 1.0×10^7 pieces/mm² of MgO, MgS and (Nb,Ti)N of not smaller than 0.05μm and not larger than 3.0μm as recited in the instant claims.

Regarding claims 10 and 11, the limitation of crystal grain ratio of short diameter to long diameter (the instant claims 10) and the limitation of diameter of ferrite crystal grains (the instant claim 11) are recognized as features depend on the composition of alloy and processes of heat treatment. As discussed in the rejection for the instant claims 1 and 9, JP'543 evidenced by US'968 in view of US'529 teaches a similar high-strength steel sheet with all of the composition ranges

Art Unit: 1733

overlapping the composition ranges of the instant invention. JP'543 further teaches the similar heating temperature range, starting cooling temperature, cooling rate, cooling time, and coiling temperature range (table 2 and 4 of JP'543) as recited in the instant invention (for example, table 13-16 of the instant specification). Therefore, the similar features as claimed in the instant claims 10 and 11 would be highly expected in the steel sheet of JP'543 evidenced by US'968 in view of US'529. MPEP 2112.01.

Regarding claims 19 and 20, JP'543 teaches adding 0.3-1.5wt%Si in the alloy, which overlaps the claimed 1.2-1.5wt%Si as recited in the instant claims. It is a prima facie case of obviousness. SEE MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed compositions of Si from the composition disclosed by JP'543, because JP'543 discloses the same utility throughout the disclosed ranges. Furthermore, JP'543 teaches that Si may be added to alloy for achieving both strength and ductility (over 0.3wt%) but should avoid weldability deteriorates (less than 1.5wt%) (paragraph [0018] of JP'543).

Art Unit: 1733

Response to Arguments

Applicant's arguments with respect to claims 1, 9-11, 19, and 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY
/Jie Yang/
Patent Examiner, Art Unit 1733